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Newsgroups: alt.alien.visitors

Subject: NASA TO BEGIN SEARCH FOR INHABITED PLANETS

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> Newsgroups: sci.space,sci.astro

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

HIGH RESOLUTION MICROWAVE SURVEY (HRMS)

PRESS KIT

OCTOBER 1992

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RELEASE: 92-161

NASA TO BEGIN SEARCH FOR INHABITED PLANETS

On Oct. 12, NASA will begin the most comprehensive search ever conducted for evidence of intelligent life elsewhere in the universe.

The search will use telescopes and antennas to detect radio transmissions from other planetary systems. The search will commence 500 years after Columbus landed in North America.

"In the first few minutes, more searching will be accomplished than in all previous searches combined," according to Dr. John Billingham of NASA's Ames Research Center, Mountain View, Calif.

"Over the past few decades, " Billingham added, "scientific opinion has increasingly supported the theory that complex life may have evolved on planets orbiting other stars in the galaxy and the universe. In some cases, further evolution may have led to the emergence of intelligence, culture and technology."

Billingham, the program chief at Ames, said the High Resolution Microwave Survey (HRMS) consists of two parts -- a Targeted Search and a Sky Survey.

The Targeted Search will use the largest available radio telescopes around the world to search the frequency range from 1,000 to 3,000 megahertz, seeking a variety of patterns that may indicate the presence of an artificially generated signal. A megahertz is a unit of frequency equal to one million cycles per second.

The Targeted Search will perform the most sensitive search ever conducted of solar-type stars less than 100 light-years distant. The Targeted Search begins from the world's largest radio telescope at the National Astronomy and Ionosphere Center's Arecibo Observatory in Puerto Rico. It is operated for the National Science Foundation by Cornell University.

The Sky Survey will use the 34-meter antennas at NASA's Deep Space Network sites in the northern and southern hemispheres to scan the entire sky over the frequency range from 1,000 to 10,000 megahertz. The Sky Survey begins at the Goldstone, Calif., site.

"Because of the large increase in the area of sky and frequencies covered, a signal will have to be stronger to be detected by the Sky Survey," Billingham said. "But it could

detect signals emitted in distant regions from directions that would be overlooked if the search were limited to nearby solar-type stars," he added.

Both elements of the HRMS are using specially developed digital signal processing systems capable of simultaneously analyzing tens of millions of radio frequency channels.

The HRMS is managed by NASA's Ames Research Center, which also is responsible for the Targeted Search project. The Jet Propulsion Laboratory, Pasadena, Calif., is responsible for the Sky Survey.

The HRMS is part of NASA's Toward Other Planetary Systems program in the Solar System Exploration Division, Office of Space Science and Applications at NASA Headquarters, Washington, D.C.

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MEDIA SERVICES INFORMATION

NASA Select Television Transmissint on Oct. 12, 1992. Video footage of the HRMS deployment will be taken for documentary and archival purposes.

Media Coverage

Those interested in attending the initial deployment at Arecibo on Oct. 12, contact Michael Mewhinney at NASA Ames Research Center by calling 415/604-9000. Those wishing to attend the initial deployment at Goldstone, Calif., contact Mary Hardin at the Jet Propulsion Laboratory by calling 818/354-5011. Because of limited parking, use of private vehicles at both sites will be

restricted. Buses will be available at both locations to transport reporters. Reportt the press desks at either the Holiday Inn, Barstow, Calif., or the Hyatt Dorado Beach Hotel, Dorado, Puerto Rico, for transportation and admissionhis telescope is operated for the National Science Foundation by Cornell University. The new 34-meter (112-foot diameter) antenna at NASA's Goldstone Deep Space Communications Complex near Barstow, Calif., will be used for the Sky Survey.

Time of Deployment: Targeted Search at 3 p.m. EDT, Arecibo, Puerto Rico; Sky Survey at noon PDT, Goldstone, Calif.

Project Duration: Expected to last until about 2001.

PROJECT HISTORY

The Earth is the only location known to harbor life. But as knowledge of the nature of lhere may, in the long run, be one of science's most important and most profound contributions to mankind and to our civilization." Also in 1972, NASA published its first report describing how NASA-developed technology could make such a search possible.

In the years between 1972 and 1988, NASA maintained a low-level research and development activity that resulted in the initiation of the Search for Extraterrestrial Intelligence Microwave Observing Project (MOP) in FY 1989.

In 1992, NASA established the High Resolution Microwave

Survey (HRMS) as part of the Toward Other Planetary Systems (TOPS) program within NASA's Solar System Exploration Division.

The Sky Survey (scanning the entire sky for strong signals coming from any direction) will begin observations at noon PDT using a 34-meter antenna at NASA's Goldstone Deep Space Communications Complex near Barstow, Calif.

PROJECT OBJECTIVES

The detection and characterization of planetary systems around other stars is the goal of NASA's Toward Other Planetary Systems (TOPS) program. Earth's solar system is still the only known example of a planetary system, and Earth is the only known planet that sustains life. Recent astrophysical observations suggest the existence of other planetary systems around distant stars. The existence of these systems could support the hypothesis that lifts TOPS program to include a new project called the High Resolution Microwave Survey (HRMS). The project will observe the microwave region of the electromagnetic spectrum in a manner that can detect signals produced by a distant technology.

Potentially, there are billions of solar systems in the Milky Way galaxy at tremendous distances from Ear provide for an expanded comparative study of the universe.

TARGETED SEARCH

Scientists at NASA's Ames Research Center will conduct the Targeted Search portion of the HRMS.

The Targeted Search will examine 1,000 nearby solar-type

stars within 100 light years distance from Earth (one light year is approximately 5.9 trillion miles). The objective is to test the hypothesis that extraterrestrial technologies are transmitting radio signals whose characteristics are greatly different from natural sources of radio emissile sensitivity, the largest available radio telescopes will be used to conduct the Targeted Search. The number of targets covered will be much larger than previous searches, and the range of frequencies covered will be thousands of times greater than all previous searches combined.

To accomplish this, specialized digital signal processing equipment has been constructed to listen for microwave radio transmissions reaching the Earth from distant planetary systems.

The specialized digital signal processing equipment will simultaneously study the radio spectrum over tens of millions of individual frequency channels, at spectral resolutions ranging from 1, 2, 4, 7, 14 and 28 helses, a likely form of interstellar transmission. An automatic data analysis subsystem will be used to detect the presence of fixed frequency or drifting continuous wave (CW) signals or sequences of regularly spaced pulses.

The Targeted Search will use the National Science Foundation's National Astronomy and Ionosphere Center's 305-meter (1,000-ft) diameter radio telescope located at the Arecibo Observatory near Arecibo, Puerto Rico, for the initial deployment of the HRMS on Oct. 12, 1992. Theng very large observations of each target at each frequency. It will serve as the logistical hub of the HRMS Targeted Search. Over the next 3 years, three more such systems will be built and packaged into two mobile research

facility trailers for air transport to the observation sites.

SKY SURVEY

The NASA Jet Propulsion Laboratory, Pasadena, Calif., will conduct the Sky Survey portion of NASA's HRMS to search for radio signals from other planetary systems. The Sky Survey will scan all directions of the sky to cover a wide range of frequencies from 1,000 to 10,000 megahertz.

NASA's HRMS will conduct a comprehensive, systematic search of a portion of the microwave radio spectrum to detect evidence of radio transmissions from other planetary systems. An intentionally transmitted signal is easiest to detect in a frequency band where the background radio noise or static is minimal. One of the quietest frequency bands is the "microwave window," which lies between 1,000 and 10,000 megahertz. Since thstic of microwave ally mapping small areas of the sky, called sky frames. As the observations are completed, over the entire sky. For each of 31 frequency bands, the sky is divided into sevplex of NASA's Deep Space Network in California's Mojave Desert. Toward the latter part of the survey, the search will move to a The prototype receiver, spectrum analyzer and signal processor will break up incomiwith 40 megahertz total bandwidth or a dual polarization mode with 20 megahertz total bandwidth. Specially designed digital hardware, operating at supercomputer speeds, will simultaneously process the 2 million channels to identify and separate intersterch organizations.

After the discovery has been verified, national and

international authorities are to be informed. News of the confirmed discovery then will be disseminated promptly, openly and widely through scientific channels and the news media. All data necessary for the confirmation of the detection will be made available to the international scientific community through publications, meetings, conferences and other appropriate means.

No response to any confirmed signal will be sent from Earth until appropriate international consultations have occurred.

PROJECT MANAGEMENT

NASA Headquarters, Washington, D.C.

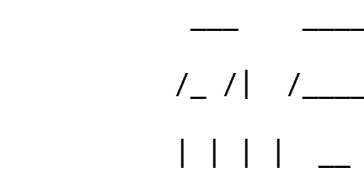
Dr. Wesley Huntress	Director, Solar System Exploration Division
Dr. Nicholas Renzetti	Manager, Telecommunications and Data Acquisition Science Complex

Goldstone Deep Space Communications Complex

Dr. Michael J. Klein	JPL SETI Project Manager and HRMS Sky Survey Manager
Dr. Samuel Gulkis	HRMS Deputy Project Scientist
J. Richard Kolden	HRMS Sky Survey Implementation Manager

Arecibo Observatory, Puerto Rico

Dr. Daniel Altschuler	Director



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